

# ATTACHMENT A

## Clean Replacement/New Claims (entire set of pending claims)

*Following herewith is a clean copy of the entire set of pending claims.*

1. (amended) An epitaxial zinc-based II-VI semiconductor film grown using single source chemical vapor deposition.
2. An epitaxial film as claimed in claim 1, wherein the epitaxial film comprises ZnS.
3. (amended) An epitaxial film as claimed in claim 2, wherein the ZnS is grown using zinc diethyldithiocarbamate as precursor for the single source chemical vapor deposition.
4. (amended) An epitaxial film as claimed in claim 2, wherein the ZnS is grown using  $\text{Zn}(\text{S}_2\text{CRN}_2)_2$ , where R comprises an alkyl group, as a precursor for the single source chemical vapor deposition.
5. A process as claimed in claim 4, wherein the number of carbon atoms in the alkyl group is in the range from 1 to 6.
6. A process comprising the steps of utilizing single source chemical vapor deposition for growing epitaxial zinc-based II-VI semiconductor film on a substrate.
7. A process as claimed in claim 6, wherein the epitaxial film comprises ZnS.
8. (amended) A process as claimed in claim 7, wherein the process comprises the use of  $\text{Zn}(\text{S}_2\text{CNR}_2)_2$ , where R comprises an alkyl group, as precursor for the single source chemical vapor deposition.

9. A process as claimed in claim 8, wherein the number of carbon atoms in the alkyl group is in the range from 1 to 6.

10. (amended) A process as claimed in claim 7, wherein the process comprises the use of zinc diethyldithiocarbamate as a precursor for the single source chemical vapor deposition.

11. (amended) A process as claimed in claim 6, wherein the substrate comprises a silicon substrate.

12. (amended) A substrate coated with a coating comprising an epitaxial zinc-based II-VI semiconductor film grown using single source chemical vapor deposition.

13. (amended) A substrate as claimed in claim 12, wherein the substrate comprises silicon.

14. (amended) A substrate as claimed in claim 12, wherein the epitaxial film comprises ZnS.

15. (amended) A process for growing an epitaxial zinc-based II-VI semiconductor film, the process comprising the steps of:

- cleaning a substrate,
- heating the substrate to a deposition temperature,
- the sublimation of a single source chemical vapor deposition precursor;
- the pyrolysis of the precursor molecules on the heated substrate; and
- the formation of the epitaxial film on the heat substrate.

16. (amended) A process as claimed in claim 15, wherein the substrate comprises silicon.

*Amend*

17. (amended) A process as claimed in claim 15, wherein the epitaxial film comprises ZnS.

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17. (amended) A process as claimed in claim 15, wherein the epitaxial film comprises ZnS.

## ATTACHMENT B

### Marked Up Replacement Claims

*Following herewith is a marked up copy of each rewritten claim together with all other pending claims.*

1. (amended) An epitaxial zinc-based II-VI semiconductor film grown using single source chemical ~~vapour~~vapor deposition.
2. An epitaxial film as claimed in claim 1, wherein the epitaxial film comprises ZnS.
3. (amended) An epitaxial film as claimed in claim 2, wherein the ZnS is grown using zinc diethyldithiocarbamate as precursor for the single source chemical ~~vapour~~vapor deposition.
4. (amended) An epitaxial film as claimed in claim 2, wherein the ZnS is grown using  $\text{Zn}(\text{S}_2\text{CRN}_2)_2$ , where R comprises an alkyl group, as a precursor for the single source chemical ~~vapour~~vapor deposition.
5. A process as claimed in claim 4, wherein the number of carbon atoms in the alkyl group is in the range from 1 to 6.
6. A process comprising the steps of ~~utilising~~utilizing single source chemical ~~vapour~~vapor deposition for growing epitaxial zinc-based II-VI semiconductor film on a substrate.
7. A process as claimed in claim 6, wherein the epitaxial film comprises ZnS.
8. (amended) A process as claimed in claim 7, wherein the process comprises the use of  $\text{Zn}(\text{S}_2\text{CNR}_2)_2$ , where R comprises an alkyl group, as precursor for the single source chemical ~~vapour~~vapor deposition.

9. A process as claimed in claim 8, wherein the number of carbon atoms in the alkyl group is in the range from 1 to 6.

10. (amended) A process as claimed in claim 7, wherein the process comprises the use of zinc diethyldithiocarbamate as a precursor for the single source chemical ~~vapour~~vapor deposition.

11. (amended) A process as claimed in ~~any one of claims 6 to 10~~claim 6, wherein the substrate comprises a silicon ~~(111)~~ substrate.

12. (amended) A substrate coated with a coating comprising an epitaxial zinc-based II-VI semiconductor film grown using single source chemical ~~vapour~~vapor deposition.

13. (amended) A substrate as claimed in claim 12, wherein the substrate comprises silicon-~~(111)~~.

14. (amended) A substrate as claimed in claims ~~12 to 13~~, wherein the epitaxial film comprises ZnS.

15. (amended) A process for growing an epitaxial zinc-based II-VI semiconductor film, the process comprising the steps of:

- cleaning a substrate,
- heating the substrate to a deposition temperature,
- the sublimation of a single source chemical ~~vapour~~vapor deposition precursor;
- the pyrolysis of the precursor molecules on the heated substrate; and
- the formation of the epitaxial film on the heated substrate.

16. (amended) A process as claimed in claim 15, wherein the substrate comprises silicon-~~(111)~~.

17. (amended) A process as claimed in claim 15 or 16, wherein the epitaxial film comprises ZnS.

17. (amended) A process as claimed in claim 15 or 16, wherein the epitaxial film comprises ZnS.

## ATTACHMENT B

## Marked Up Replacement Claims

*Following herewith is a marked up copy of each rewritten claim.*

13. (Thrice Amended) A substrate as claimed in claim 12, wherein the substrate comprises ~~(111)~~ silicon (111).

16. (Thrice Amended) A process as claimed in claim 15, wherein the substrate comprises ~~(111)~~-silicon (111).